

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1-16 (canceled).

17. (New) A method of analyzing blood, comprising:
applying a signal to a transducer element, wherein the signal has a
value;
varying the value of the signal applied to the transducer element;
delivering blood to the transducer element;
measuring a response of the blood to the signal; and
determining a characteristic of the blood as a function of the measured
response.
18. (New) The method of claim 17, further comprising preparing the blood.
19. (New) The method of claim 18, wherein preparing the blood comprises at
least one of the following: adding a bulk activator, filtering, and applying a bioactive material
to the transducer element.
20. (New) The method of claim 18, further comprising determining the
characteristic of the blood as a function of the preparing.
21. (New) The method of claim 17, wherein the value is at least one of the
following: frequency, amplitude, transfer function, phase, quality factor, impedance and
admittance.
22. (New) The method of claim 17, wherein the response is directly related to at
least one of the following: a frequency value, an amplitude value and a phase value.
23. (New) The method of claim 17, wherein the blood characteristics include at
least one of the following: coagulation, activation of plasma factors, thrombin, and platelet
function.
24. (New) The method of claim 17, wherein the characteristic includes at least
one of the following: clotting, coagulation, platelet aggregation, density, elasticity, viscosity,
clot stiffness, platelet concentration, platelet activation, platelet receptor activities, collagen
receptor, GPIIb function, blood hemostatic factor concentration, bleeding time, activated
clotting time, activated partial thromboplastin time, prothrombin time, thrombin time,

Fibrinogen, factor VIII deficiency, von Willebrand factor, tissue factor, specific drug concentration, therapeutic effects of anticoagulation, platelet inhibition, and thrombin inhibition.

25. (New) The method of claim 17, further comprising determining at least one of the following based on the blood characteristics: excessive clotting and excessive bleeding. (We were going to put a claim here regarding a therapeutic range for clotting, but I don't see any support in the specification. Please identify such support.)

26. (New) The method of claim 17, further comprising interrogating the blood.

27. (New) The method of claim 17, further comprising preparing the transducer element.

28. (New) The method of claim 27, wherein the preparing of the transducer comprises attaching a biofunctionalized layer to the transducer surface.

29. (New) The method of claim 17, further comprising allowing a patient to stay in a therapeutic range.

30. (New) The method of claim 26, wherein the interrogating comprises vibrating the blood using the transducer to generate a wave that penetrates the blood a predetermined distance.

31. (New) The method of claim 26, wherein the vibration is at least one of the following: shear, torsional, compressional, and a combination thereof.

32. (New) The method of claim 26, wherein the vibration is an acoustic wave.

33. (New) A device for analyzing blood, comprising:
a transducer element;
a biological sensing media in communication with the transducer element;
a signal driver in communication with the transducer element, wherein the signal driver applies a signal to a transducer element, and wherein the signal driver varies a value of the signal;
an inlet port that directs blood to the transducer element; and
a signal processor in communication with the transducer element, wherein the signal processor measures a response of the blood to the signal and determines a characteristic of the blood as a function of the measured response.

34. (New) The device of claim 33, wherein the transducer element includes at least one of the following: piezoelectric, electrostrictive, magnetostrictive, acoustooptic and thermo acoustic sensors, and a combination thereof.

35. (New) The device of claim 33, wherein the transducer element includes an array of sensors.

36. (New) The device of claim 33, wherein the transducer element comprises a bioactive material that facilitates determination of a characteristic of the blood.

37. (New) The device of claim 33, wherein the value is at least one of the following: a frequency, an amplitude, and a phase.

38. (New) The device of claim 37, wherein the frequency values ranges from 1 KHz to 10 GHz.

39. (New) The device of claim 37, wherein the frequency values are provided to the transducer in at least one of the following ways: individually, sequentially, and simultaneously at the available frequencies.

40. (New) The device of claim 37, wherein the frequency values include at least one of the following: resonant, antiresonant, harmonic and anharmonic frequencies of the first and higher orders.

41. (New) The device of claim 33, wherein a depth of penetration into the blood created by the transducer element is in the range of 1 nanometer to 1 centimeter from a surface of the transducer element.

42. (New) The device of claim 33, further comprising a catheter in communication with the transducer.

43. (New) The device of claim 33, wherein the device is self-administered.

44. (New) The device of claim 33, further comprising a first and second acoustic sensor, wherein the first sensor analyzes the blood, and wherein the second sensor compares the blood to a reference fluid.

45. (New) The device of claim 33, wherein the transducer element is coated with collagen, and wherein a higher frequency permits detection of platelet adhesion, and wherein a lower frequency permits detection of coagulation.

46. (New) The device of claim 33, wherein the transducer element is coated with tissue thromboplastin, and wherein a lower frequency is applied to the transducer element to

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permit detection of blood coagulation, and wherein a higher frequency is applied to detect at least one of one of plasma coagulation factor concentration and plasma coagulation factor activation.

47. (New) The device of claim 33, further comprising a bulk bioactive material that facilitates determination of a characteristic of the blood.

48. (New) The device of claim 33, further comprising data storage, data processing and data transmission.

49. (New) The device of claim 48, wherein the data storage stores at least one of the following: medical patient data, blood data, temperature, heart rate, and blood pressure.

50. (New) The device of claim 48, wherein the data processing unit provides medical condition information to a patient.

51. (New) The device of claim 48, wherein the data transmission unit provides wired and wireless communication between the device, a patient and a medical health center.